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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Jerrold V. Hauck, et al.

Application No.: 09/059,533

Filed: April 13, 1998

For: EARLY ACKNOWLEDGMENT OF
PRIMARY PACKETS

Examiner: Joseph D. Torres

Art Group: 2133

RECEIVED

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Assistant Commissioner for Patents
Washington, D.C. 20231

Technology Center 2100

SECOND SUPPLEMENTAL APPEAL BRIEF

Appellants submit, in triplicate, the following Second Supplemental Appeal Brief pursuant to 37 C.F.R. §1.193(b)(2) and respectfully request reinstatement of an appeal that was the subject of Appellants' October 31, 2002 Supplemental Appeal Brief, in which Appellants requested reinstatement of an appeal that was the subject of Appellants' March 7, 2002 Appeal Brief. This Second Supplemental Appeal Brief is being filed following the re-opening of prosecution in a non-final Office Action dated December 13, 2002, which the Examiner issued in light of the arguments submitted in Appellants' October 2002 Supplemental Appeal Brief.

Pursuant to 37 C.F.R. §1.193(b)(2) and MPEP §1208.02, Appellants do not submit a fee in connection with this Second Supplemental Appeal Brief since the fee has been previously paid. Please charge any additional amount due or credit any overpayment to Deposit Account 02-2666.

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I. REAL PARTY IN INTEREST

Jerrold V. Hauck, the party named in the caption, and David W. LaFollette transferred their rights to that which is disclosed in the subject application through an assignment recorded on April 13, 1998 (9117/0109) to Intel Corporation of Santa Clara, California. Thus, as the owner at the time the brief is being filed, Intel Corporation of Santa Clara, California is the real party in interest.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 1-11 are pending in this application. All pending claims stand rejected and are presented for appeal.

IV. STATUS OF AMENDMENTS

No amendments have been filed subsequent to the Final Office Action mailed November 7, 2001.

V. SUMMARY

Pursuant to MPEP §1208.02, Appellants hereby incorporate by reference from Appellants' Supplemental Appeal Brief filed October 31, 2002, the section entitled "Summary."

VI. ISSUES

The issues involved in this Appeal are as follows:

Whether Claims 4-11 contain subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Whether Claims 4-11 are indefinite for failing to particularly point out and distinctly claim the subject matter that Appellants regard as the invention.

Whether Claims 1-11 are obvious over GB 2266032A to Boal, et al. (“Boal”).

VII. GROUPING OF CLAIMS

Appellants submit that the claims do not stand or fall together. Accordingly, Appellants group the claims as follows:

- Group I: Claims 1-3
- Group II: Claim 4
- Group III: Claims 5-8
- Group IV: Claims 9-11

The reason for the independent patentability of the separate groups is discussed in detail below.

VIII. ARGUMENT

A. Groups II, III, and IV: Rejection of Claims 4-11 As Being Non-Enabling

The Examiner rejects Claims 4-11 under 35 U.S.C. 112, first paragraph, as containing subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, the Examiner states that the term “concurrently” is defined by Webster’s dictionary to mean “operating at the same time or running in parallel” and that the inclusion of the term “concurrently” in Appellants’ claims implies that the NAK is generated in parallel with the receipt of the packet. From this, the Examiner concludes that it must take the same amount of time to generate the NAK as it does to receive the packet.

The Examiner acknowledges that Appellants teach that a NAK is produced and sent to the transmitter in sufficient time to abort sending the rest of the packet. However, the Examiner

asserts that Appellants do not teach “sending a NAK to the originator of the primary packet concurrently with the receiving” (e.g., generating the NAK in parallel with receipt of the packet).

In response, Appellants first note that, under MPEP §2163.06, the claims as filed in the original specification are part of the disclosure. Thus, Appellants’ original disclosure, including original independent Claims 4, 5, and 9, teaches “concurrently” sending (Claim 4) and generating (Claims 5 and 9) a NAK. For at least this reason, Appellants believe that the specification, as filed, is enabling.

Moreover, Appellants disagree with the Examiner’s conclusion that the duration of two separate operations must be the same in order to be considered “concurrent.” Rather, a more reasonable (and widely accepted) definition of “concurrent” would include the notion that the occurrence of the two events need only overlap for at least some period of time.

Accordingly, Appellants respectfully request that the rejection of the claims of Groups II, III, and IV under 35 U.S.C. 112, first paragraph, be overturned.

B. Groups II, III, and IV: Rejection of Claims 4-11 As Being Indefinite

The Examiner rejects Claims 4-11 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Appellants regard as the invention. In making the rejection, the Examiner cites In re Hill, which states that “While applicant may be his or her own lexicographer, a term in a claim may not be given a meaning repugnant to the usual meaning of that term” (emphasis added). The Examiner further states that the term “concurrently” in Appellants’ claims is used to mean “during,” while the accepted meaning of “concurrently” is “in parallel.” Even using the Examiner’s definition, “in parallel” does not imply equal length. Two parallel line segments need not be the same length. Similarly, computer code instructions executed in parallel does not imply that all instructions take equal processing time. Here, the Examiner is attempting to equate “concurrent” with “coextensive.” This is clearly repugnant to the ordinary meaning of concurrent.

Conversely, the definition and general understanding of the term “concurrently” set forth above by Appellants is in no way repugnant to the usual meaning of the term as to warrant a rejection under 35 U.S.C. 112, second paragraph.

Accordingly, Appellants respectfully request that the rejection of the claims of Groups II, III, and IV under 35 U.S.C. 112, second paragraph, be overturned.

C. Group I: Rejection of Claims 1-3 As Being Obvious Over Boal

The Examiner rejects Claims 1-3 under 35 U.S.C. 103(a) as being obvious over Boal. In order to render a claim obvious, the relied upon reference must teach or suggest every limitation of the claim such that the invention as a whole would have been obvious at the time the invention was made to one skilled in the art. In this regard, the Examiner has failed to show how Boal teaches or suggests every limitation of independent Claim 1, which recites:

A method comprising:
transmitting a primary packet from a source node towards a destination node on a full duplex bus;
receiving a NAK while the primary packet is being transmitted; and
aborting the transmission without sending all of the primary packet. (emphasis added)

In making the rejection, the Examiner relies on Boal to show receipt of a NAK while the packet is being transmitted (Abstract; Claims 33 and 35; and Figure 6 of Boal). However, Boal does not teach or suggest receipt of a NAK while the packet is being transmitted. Rather, Boal discloses a number of different types of packets and their respective manners of operation, none of which teach or suggest receiving a NAK while a primary packet is being transmitted.

For example, Boal discloses “connectionless” packets (page 6, lines 6-23) and “connection-oriented” packets (page 4, line 20-page 6, line 5). The connectionless packets are either broadcast or test packets that do not have a reply (e.g., ACK or NAK) aspect to them. Thus, if there is no reply component, there can be no receipt of a NAK while the primary packet is being transmitted.

Boal discloses three main types of connection-oriented packets. First, the SAR (e.g., Short, Auto Reply) packet consists of a header and an automatic reply generated by the receiver (page 4, lines 24-33; Figure 2). However, the receiver does not generate the reply until after the entire header is received (e.g., no longer being transmitted). Moreover, Boal does not provide for the system to generate or send a reply at any time prior to the end of the transmission of the header. Thus, there cannot be a receipt of a NAK while the primary packet is being transmitted.

Second, Boal discloses an LDPR (e.g., Long, Deferred Processed Reply) packet, which consists of a header, an automatic reply generated by the receiver, a data frame, and a processed reply generated by the receiver (page 5, lines 1-26; Figure 3). Boal explicitly indicates that the first reply is automatically generated after the header frame, at which point the remainder of the packet (e.g., data frame) can be aborted or delayed. However, a fair reading of Boal indicates that the transmitter must wait to resume transmission (e.g., of the data frame), which has necessarily been halted to wait for a positive reply from the receiver to continue transmission. Thus, the first reply is received by the transmitter during a waiting state, not during transmission of a primary packet, as recited in Appellants' independent Claim 1.

If transmission of the data frame is permitted for an LDPR packet, the second reply is a processed reply that is sent after the data frame is received. Thus, the processed reply cannot be received during transmission of a primary packet since the entire packet to be transmitted (e.g., header and data frames) has already been sent by the time the second reply is sent.

A simpler version of the LDPR packet is also disclosed, wherein the data frame is sent immediately following the header frame without the automatic reply. The processed reply is still sent after the header and data frames have already been received. Thus, the processed reply cannot be received during transmission of the packet, which has already been completed by the time the processed reply is sent. Regardless of the type of LDPR packet used, the specification and Figure 3 of Boal show that both embodiments fail to teach or suggest receiving a NAK during transmission of a primary packet, as recited in Appellants' independent Claim 1.

Third, Boal discloses an LIPR (e.g., Long, Immediate Processed Reply) packet, which consists of a header, a processed reply generated by the receiver, a data frame, and an automatic reply generated by the receiver (page 5, line 27-page 6, line 5; Figure 4). With an LIPR packet, transmission is halted after the header frame is sent, and the transmitter is unable to send the data frame (e.g., remainder of packet to be transmitted) until after the processed reply is sent by the receiver. Thus, the system must be delayed in a waiting state (e.g., no transmission occurring) until the transmitter receives the processed reply from the receiver.

After the transmitter receives the processed reply, the transmitter may resume transmission of the remainder of the packet (e.g., data frame). The receiver generates the automatic reply once the receiver receives the data frame. Thus, the automatic reply cannot be received during transmission of a primary packet since the transmission is already complete by the time the automatic reply is generated.

Overall, Boal discloses packet types in which the transmitter and receiver take turns sending information. However, there is no teaching or suggestion that a NAK (or any other type of reply for that matter) is ever received while the primary packet is being transmitted. Rather, replies can only be sent and received during intervals between transmission of information (e.g., header and data frames). This requirement that transmission is halted in order to wait for a reply before sending the remainder of a packet wastes bus time unnecessarily.

Appellants further note that there does not appear to be any explicit or implicit indication that Boal contemplates transmission of a primary packet on a full duplex bus, as recited in Appellants' independent Claim 1. The absence of a full duplex bus in Boal could explain why the transmitter and receiver of Boal are forced to take turns transmitting and acknowledging.

Accordingly, Appellants respectfully request that the rejection of the claims of Group I under 35 U.S.C. 103(a) be overturned.

D. Group II: Rejection of Claim 4 As Being Obvious Over Boal

The Examiner rejects Claim 4 under 35 U.S.C. 103(a) as being obvious over Boal. The Examiner has failed to show how Boal teaches or suggests every limitation of independent Claim 4, which recites:

A method comprising:
receiving a primary packet at a destination node;
identifying, during the receiving, that the node cannot successfully accept the primary packet; and
sending a NAK to the originator of the primary packet concurrently with the receiving.
(emphasis added)

In making the rejection, the Examiner relies on Boal to show sending a NAK to the originator of the packet during the receiving (Abstract; Claims 33 and 35; and Figure 6 of Boal). However, Boal does not teach or suggest sending a NAK concurrently with the receipt of the packet. Rather, as described above in detail, Boal discloses a number of different types of packets and their respective manners of operation, none of which teach or suggest sending a NAK concurrently with the receipt of a primary packet. Specifically, all of the replies disclosed by the system of Boal are sent while the transmitter has halted transmission or after the entire packet has been previously sent. There is no overlap between the primary packet receipt and the sending of an NAK. Thus, the NAK is not sent concurrently with receipt of the primary packet.

Accordingly, Appellants respectfully request that the rejection of Claim 4 under 35 U.S.C. 103(a) be overturned.

E. Group III: Rejection of Claims 5-8 As Being Obvious Over Boal

The Examiner rejects Claims 5-8 under 35 U.S.C. 103(a) as being obvious over Boal. The Examiner has failed to show how Boal teaches or suggests every limitation of independent Claim 5, which recites:

A system comprising:
a full duplex bus;
a source node coupled to the bus, the source node to transmit a primary packet; and
a destination node coupled to the bus, to receive the primary packet, the destination node to generate a NAK if the primary packet cannot be successfully accepted, the NAK generated concurrently with the receipt of the primary packet. (emphasis added)

In making the rejection, the Examiner does not distinguish between the language of Claims 4 and 5. Thus, the Examiner relies on Boal to show sending a NAK to the originator of the packet during the receiving (Abstract; Claims 33 and 35; and Figure 6 of Boal). However, Appellants note that Claim 5 is concerned with generation of the NAK rather than sending the NAK. Specifically, Claim 5 recites generation of the NAK if the primary packet cannot be successfully accepted, wherein the generation occurs concurrently with the receipt of the primary packet.

Appellants first reiterate that there does not appear to be any explicit or implicit indication that Boal contemplates transmission of a primary packet on a full duplex bus, as recited in Appellants' independent Claim 5. The lack of any teaching or suggestion of a full duplex bus in Boal is fatal to the Examiner's rejection.

Moreover, Boal does not teach or suggest generation of the NAK if the primary packet cannot be successfully accepted, wherein the generation occurs concurrently with the receipt of the primary packet. As discussed above, Boal discloses different types of packets and their respective manners of operation, none of which teach or suggest all of the limitations of Appellants' Claim 5.

The LDPR packet appears to be the most relevant to Appellants' Claim 5 but still falls short of rendering Claim 5 obvious. Specifically, Boal begins processing the second reply of the LDPR packet after receipt of the header, and the processing may continue during receipt of the data frame (page 5, lines 16-21). However, Appellants' Claim 5 does not merely recite generation of the NAK concurrently with the receipt of the primary packet.

Rather, Claim 5 also recites that the NAK is generated if the primary packet cannot be successfully accepted (emphasis added). At least this limitation is neither taught nor suggested by Boal since, in an LDPR transaction, the receiver accepts the entire packet (e.g., header and data frames) and then sends a processed reply only to ensure that the packet was correctly received (page 5, lines 24 and 25). The receiver makes the determination of whether the packet can be successfully accepted based on the header and, if so, sends a positive first reply, which is not

generated concurrently with receipt of a primary packet (page 5, lines 7-15). If no first reply is sent (e.g., simplified LDPR), no determination is ever made of whether the packet can be successfully accepted. Thus, for a simplified LDPR transaction, the processed reply cannot be presumed to be generated “if the primary packet cannot be accepted,” since the entire packet will be automatically accepted and then merely checked for integrity.

If the first reply indicates that the packet cannot be successfully accepted, the transmission is aborted or delayed. If the transmission is aborted, no data frame is sent, and no processed reply can be generated during receipt of the data frame. If, however, the packet can be accepted (or can now be sent after a delay), the processed reply that is created during arrival of the data frame cannot be properly considered to be generated in response to whether the packet can be accepted (since that determination has already been made). Rather, as mentioned earlier, the processed reply is merely created to ensure that the packet was properly received. Therefore, at least these limitations of Appellants’ Claim 5 are neither taught nor suggested by Boal.

Accordingly, Appellants respectfully request that the rejection of the claims of Group III under 35 U.S.C. 103(a) be overturned.

F. Group IV: Rejection of Claims 9-11 As Being Obvious Over Boal

The Examiner rejects Claims 9-11 under 35 U.S.C. 103(a) as being obvious over Boal. The Examiner has failed to show how Boal teaches or suggests every limitation of independent Claim 9, which recites:

An apparatus comprising:
a transceiver;
a state machine coupled to the transceiver, the state machine to generate NAK in response to an inability to successfully accept a primary packet, the NAK generated concurrently with an ongoing arrival of the primary packet. (emphasis added)

In making the rejection, the Examiner insists on interpreting Appellants’ Claim 9 as reciting a NAK generated “during” (in place of “concurrently”) an arrival of the primary packet that “is in actual process” (in place of “ongoing” arrival of the primary packet). Appellants respectfully

submit that the term “ongoing” appears appropriate and that the Examiner’s use of the phrase “in actual process” is confusing. However, Appellants submit that even if the Examiner’s preferred terminology is accepted, Boal still fails to render Claim 9 obvious.

The Examiner relies on Boal to show a state machine to generate a NAK in response to an inability to successfully accept a packet (page 3, paragraph 2 of Boal), wherein the NAK is generated during an arrival of the primary packet that is in actual process (Abstract; Claims 33 and 35; and Figure 6 of Boal). In response, Appellants note that Claim 9 contains limitations that are not taught or suggested by Boal.

Specifically, Boal does not teach or suggest a state machine to generate a NAK in response to an inability to successfully accept a primary packet, wherein the generation occurs concurrently with the ongoing arrival of the primary packet. As discussed above, Boal discloses different types of packets and their respective manners of operation, none of which teach or suggest all of the limitations of Appellants’ Claim 9.

The LDPR packet appears to be the most relevant to Appellants’ Claim 9 but still falls short of rendering Claim 9 obvious. Specifically, Boal begins processing the second reply of the LDPR packet after receipt of the header, and the processing may continue during receipt of the data frame (page 5, lines 16-21). However, Appellants’ Claim 9 does not merely recite generation of the NAK concurrently with the ongoing arrival of the primary packet.

Rather, Claim 9 also recites that the NAK is generated in response to an inability to successfully accept the primary packet (emphasis added). At least this limitation is neither taught nor suggested by Boal since, in an LDPR transaction, the receiver accepts the entire packet (e.g., header and data frames) and then sends a processed reply only to ensure that the packet was correctly received (page 5, lines 24 and 25). The receiver makes the determination of whether the packet can be successfully accepted based on the header and, if so, sends a positive first reply, which is not generated concurrently with the ongoing arrival of a primary packet (page 5, lines 7-

15). If no first reply is sent (e.g., simplified LDPR), no determination is ever made of whether the packet can be successfully accepted. Thus, for a simplified LDPR transaction, the processed reply cannot be presumed to be generated “in response to an inability to successfully accept the primary packet,” since the entire packet will be automatically accepted and then merely checked for integrity.

If the first reply indicates that the packet cannot be successfully accepted, the transmission is aborted or delayed. If the transmission is aborted, no data frame is sent, and no processed reply can be generated during receipt of the data frame. If, however, the packet can be accepted (or can now be sent after a delay), the processed reply that is created during arrival of the data frame cannot be properly considered to be generated in response to whether the packet can be accepted (since that determination has already been made). Rather, as mentioned earlier, the processed reply is merely created to ensure that the packet was properly received. Therefore, at least these limitations of Appellants’ Claim 9 are neither taught nor suggested by Boal.

Accordingly, Appellants respectfully request that the rejection of the claims of Group IV under 35 U.S.C. 103(a) be overturned.

IX. CONCLUSION AND RELIEF

Based on the foregoing, Appellants request that the Board overturn the rejection of all pending claims and hold that all of the claims of the present application are allowable.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

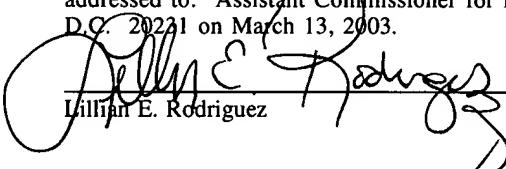
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I hereby certify that this correspondence is being deposited as First Class Mail with the United States Postal Service in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on March 13, 2003.


Lillian E. Rodriguez

3-15-03
March 13, 2003

X. APPENDIX

The claims involved in this Appeal are as follows:

1 1. (Amended) A method comprising:
2 transmitting a primary packet from a source node towards a destination node on a full
3 duplex bus;

4 receiving a NAK while the primary packet is being transmitted; and
5 aborting the transmission without sending all of the primary packet.

1 2. (Amended) The method of Claim 1 further comprising:
2 reclaiming bandwidth not used as a result of aborting.

1 3. (Amended) The method of Claim 2 wherein reclaiming comprises:
2 granting the bus to a highest priority requesting node; and
3 beginning transmission of a next primary packet from the highest priority requesting node.

1 4. (Amended) A method comprising:
2 receiving a primary packet at a destination node;
3 identifying, during the receiving, that the node cannot successfully accept the primary
4 packet; and
5 sending a NAK to the originator of the primary packet concurrently with the receiving.

1 5. A system comprising:
2 a full duplex bus;
3 a source node coupled to the bus, the source node to transmit a primary packet; and
4 a destination node coupled to the bus, to receive the primary packet, the destination node to
5 generate a NAK if the primary packet cannot be successfully accepted, the NAK generated
6 concurrently with the receipt of the primary packet.

1 6. The system of claim 5 wherein the source node aborts a transmission responsive to
2 the NAK.

1 7. The system of claim 6 further comprising:
2 a plurality of additional nodes coupled to the bus to form a tree topology wherein the source
3 node grants the bus to a highest priority requesting node upon aborting the transmission.

1 8. The system of claim 5 wherein an inability to accept the primary packet is caused by
2 unavailability of a needed resource.

1 9. An apparatus comprising:
2 a transceiver;
3 a state machine coupled to the transceiver, the state machine to generate NAK in response
4 to an inability to successfully accept a primary packet, the NAK generated concurrently with an
5 ongoing arrival of the primary packet.

1 10. The apparatus of claim 9 wherein the inability to accept is caused by resource
2 unavailability.

1 11. The apparatus of claim 9 wherein when the apparatus is a source of a primary
2 packet, it aborts a transmission of the primary packet when a NAK is received.